

# Non-Invasive Centrifuge Restraint System for Avanti J-E, JXN-26, JXN-30, J-26S XP Series, J-26 XP Series, and J-30I Centrifuges

## Kit Contents (Part Number 393316)

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Description	Quantity
Zinc-plated steel restraining plate	1
Aluminum casters	2
Metal anchor brackets	2
Shackles	2
Hex flange bolts	4
Ball end set screws	4
Adhesive-backed foil discs	16
Tube silicone RTV (Dow Corning RTV-108)	1
Plastic spacers	4
Adhesive-backed mounting strips, 30 inches long	2
Adhesive-backed mounting strips, 8 inches long	4
Adhesive-backed circular pads	2
Plastic ramps	2

## Replacement Parts

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Replacement strips and pads are available through Beckman Coulter (see parts list below). Because the adhesive has a warranted shelf life of two years, it is advised that replacement strips and pads be purchased as needed.

Part Number	Description
393316	Non-Invasive Centrifuge Restraint System, Avanti
393317	Kit, Adhesive - Avanti N.I.C.R.S. (includes adhesive strips for retaining plate and pads for casters)

## Introduction

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In order to meet the North American CSA/UL and European Union/world IEC/EN safety standard requirements, the Avanti J-E, Avanti J-26S XP Series, Avanti J-26 XP Series, and Avanti J-30I centrifuges must be restrained to the floor to prevent centrifuge movement in the unlikely event of a rotor mishap. Restraining is not required for the Avanti JXN-26 and Avanti JXN-30 centrifuges, but may be done so as a user preference. Restraining kit 393316 is specifically designed and approved for use only on sealed epoxy aggregate flooring. The kit includes a steel restraining plate and casters that are affixed to the floor with adhesive strips comprising of neoprene rubber laminated to high-performance, removable adhesives (3M VHB 4952 and 9472LE). These adhesive strips have a workable life of up to five years; however, it is highly recommended that the laminates be replaced every two years to ensure optimum bond integrity. Adhesive replacement kits and accessory kits are available through Beckman Coulter.

## Application of Adhesive Strips or Pads

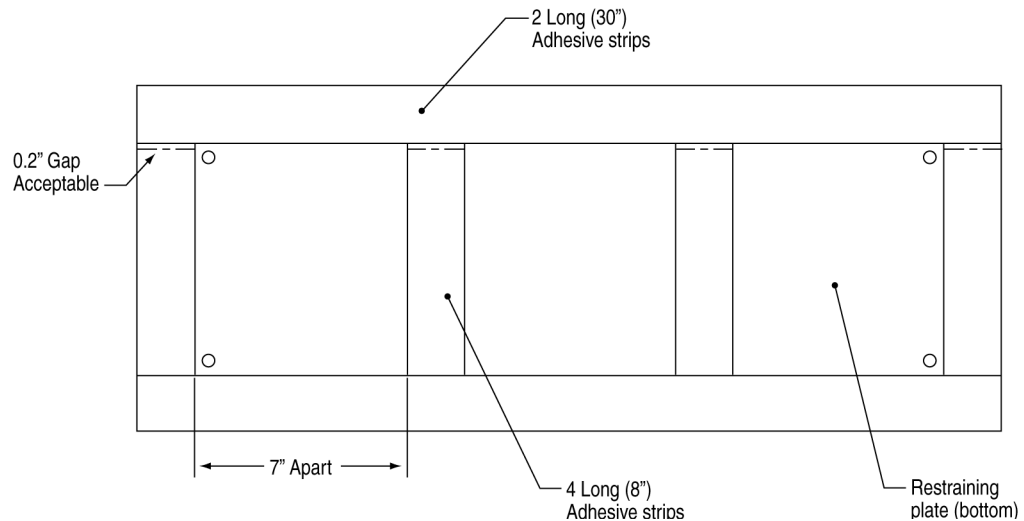
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**Each adhesive kit is labeled with a “USE BY” date. Do not apply the adhesive kit to the restraining plate if this date has passed. Contact Beckman Coulter for a replacement kit.**

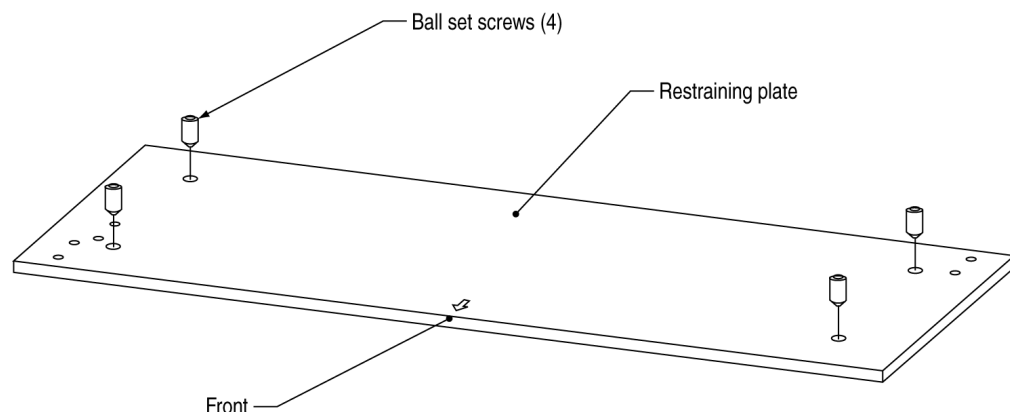
- 1 Clean the restraining plate using a 50% to 70% solution of isopropyl alcohol.
- 2 Peel approximately 1 inch of the brown release lining from one of the 30-inch adhesive strips. DO NOT remove the white release lining from the double-sided VHB foam tape at this time.
- 3 Align the edge of the adhesive strip along one of the long edges of the bottom of the restraining plate.  
**NOTE** The bottom of the restraining plate contains no markings. The top of the plate is marked with an arrow in the center of one of the long edges.
- 4 Remove the brown release lining from the adhesive strip as you apply it to the length of the restraining plate. Avoid using excessive tension on the strip, as this may cause the strip to stretch.
- 5 Perform Steps 2 through 4 on the other long edge of the restraining plate.

- 6 Ensure that the 8-inch strips fit between the inner edges of the long strips attached to the plate. If the short strips will not fit between the longer strips, cut to length. A gap of up to 0.2 inches is acceptable between the shorter and longer strips, but overlap of the strips must be avoided.
- 7 Using the same technique described in Steps 2 through 4, apply the four 8-inch strips onto the restraining plate, as shown in the figure below.



## Installation Procedure

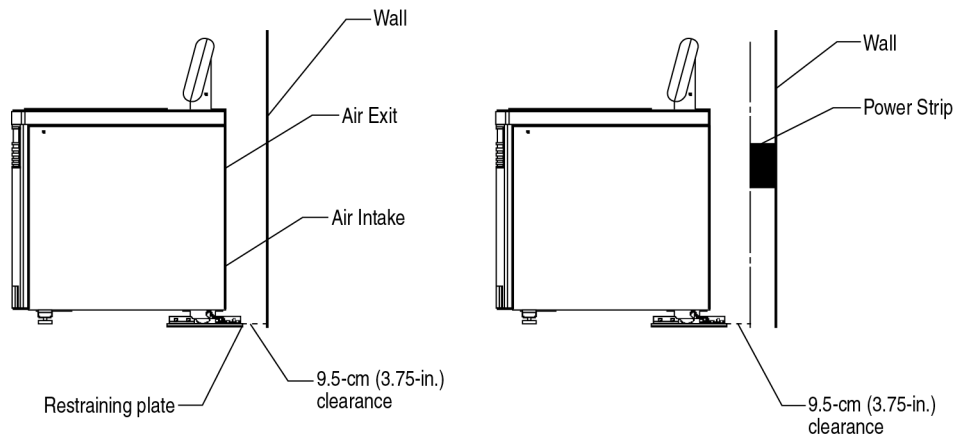
- 1 Thread the four ball set screws into the top (non-adhesive) side of the restraining plate. These screws provide clearance between the plate adhesive and the floor for positioning prior to installation.



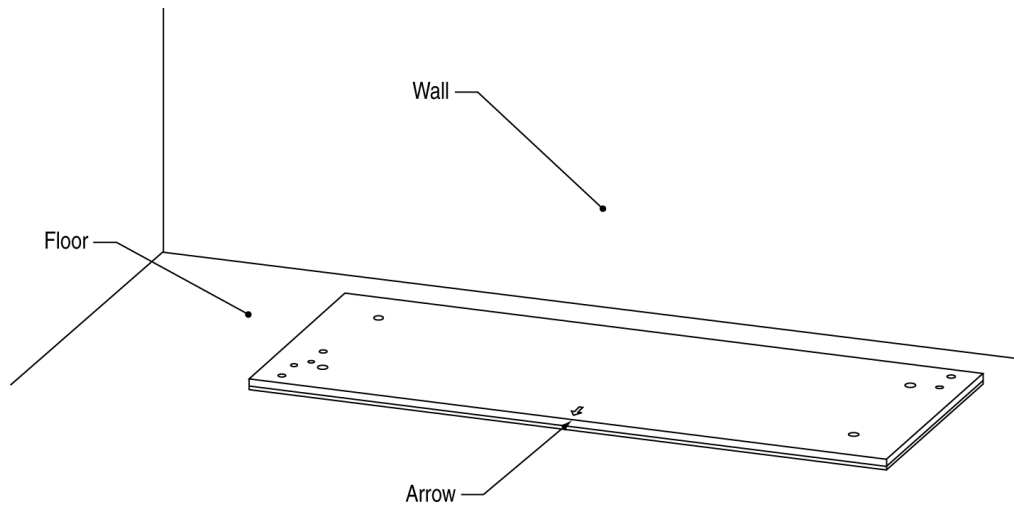
- Determine where the instrument will be located. Allow a 9.5-cm (3.75-inch) minimum clearance from the back of the restraining plate to the wall to accommodate the air diverter (refer to the figure below), which extends out from the back of the centrifuge.

**NOTE** The air diverter is not included on the Avanti JXN series centrifuges, but the same minimum clearance should be allowed.

If anything is mounted on the wall, such as a power strip, the 9.5-cm (3.75-inch) clearance should extend from the back of the centrifuge to a vertical plane even with the front of that object.

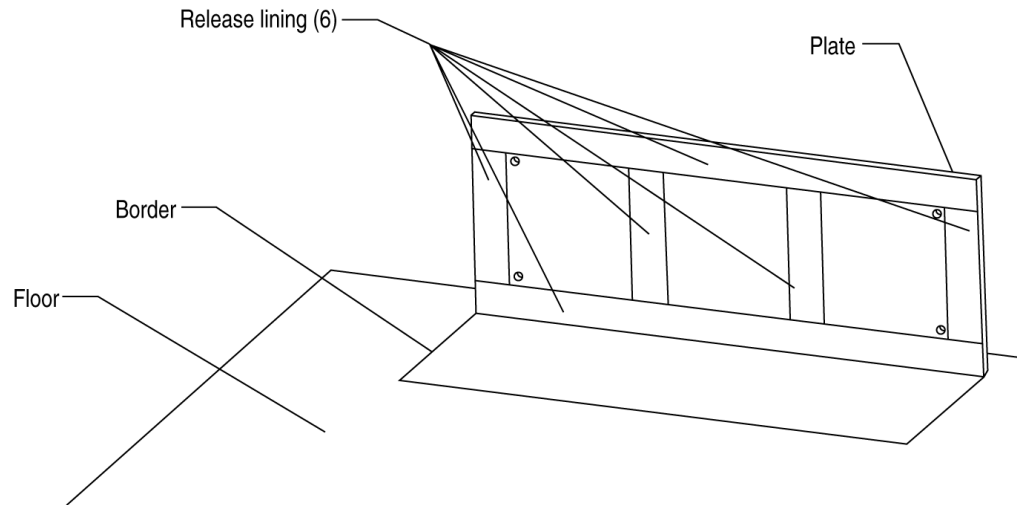


**NOTE** Check the orientation of the restraining plate, making sure the arrow is pointing toward the front of the centrifuge.

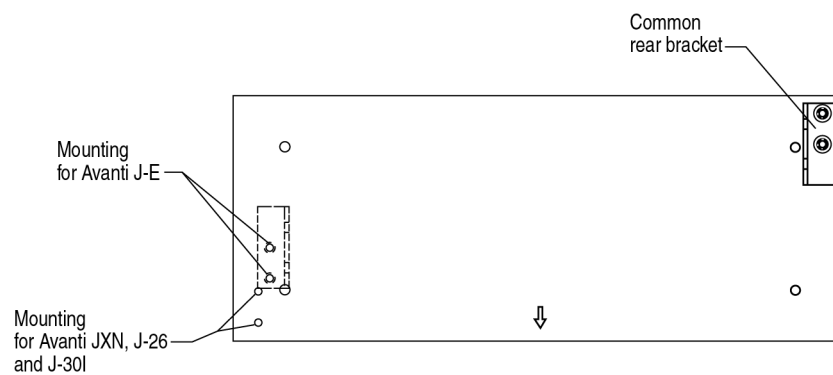


- It is very important that the floor surface is free of dust, oil or other contaminants. Clean the area of the floor with a 70% solution of isopropyl alcohol.

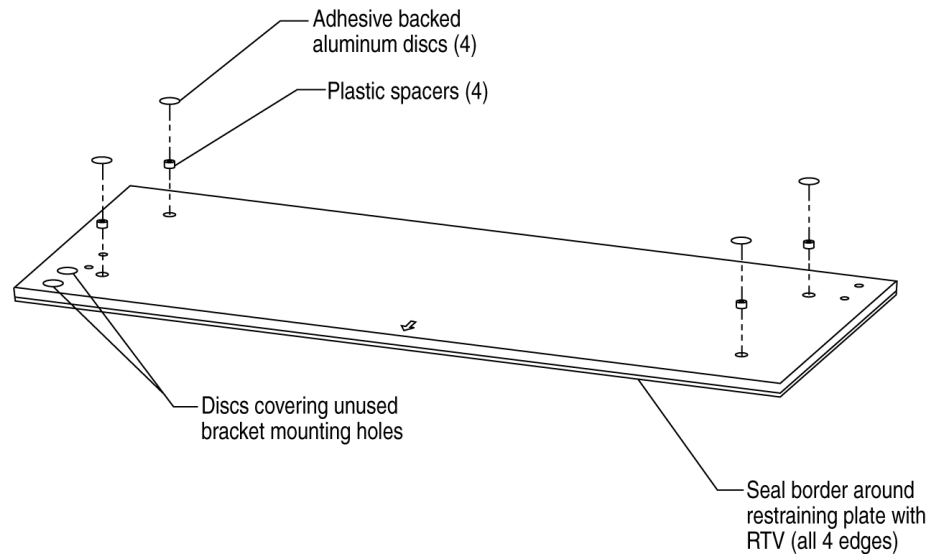
- 4 Check the floor for protrusions or surface variations. The restraining plate must be affixed to a flat surface in order for the adhesive strips to make full contact with the floor. To check for this, position the plate onto the floor and back out all four set screws. Check all four sides of the plate to ensure the adhesive strips are in contact with the floor. Once a level surface has been located, mark the border of the plate onto the floor. Tip the restraining plate on its long edge. Remove the release liner from the six adhesive strips. Tip the restraining plate back down to the floor.



- 5 There are different anchor patterns depending on the specific centrifuge model. Determine the mounting hole pattern to be used by referring to the figure below. Do NOT mount the brackets until Step 7 is completed.



- Remove all four ball set screws from the plate. Insert the four plastic spacers into the set screw holes. These spacers protect the floor from damage if the restraining plate is removed. To avoid contamination to the adhesive, cover all unused holes on the restraining plate with the metal adhesive discs provided with the kit. (See the figure below for details.) Run a bead of RTV along all four edges of the restraining plate. Allow sufficient time for the RTV to cure to a tack-free condition before completing Step 8.



- Center the centrifuge in front of the restraining plate and insert the two ramps provided between the centrifuge rear wheel casters and the plate. Roll the centrifuge over the plastic ramps onto the restraining plate.
- Loosely secure the anchor brackets to the restraining plate with the four hex flange screws. Using the shackles provided, secure the centrifuge to the anchor brackets.
- Nest the casters under the feet of the centrifuge. Lower the feet into the pockets of the casters until they make solid contact with the floor. Mark the location of the casters on the floor. Once the position is marked, raise the feet and remove the casters.
- Clean the bottom of each caster with a solution of 50% to 70% isopropyl alcohol. Remove the brown release liner from the adhesive pads and apply them to the bottom of the casters.
- Remove the release liner from the adhesive on the casters and position the casters within the boundaries marked in Step 10. Lower the centrifuge feet back into the casters, ensuring the feet nest into the pockets of the casters.

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- 12** Level the centrifuge. (For details, see the preinstallation guide provided with the centrifuge.)

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  - 13** Ensure that the two rear wheels of the centrifuge are in contact with the restraining plate after leveling.

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  - 14** Tighten the four hex flange bolts securely to the anchor brackets.

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  - 15** Apply a bead of RTV around the bottom of both front casters.
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## Removal Procedure

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- 1** Remove the centrifuge from the restraining plate.

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  - 2** Remove the left front anchor bracket from the restraining plate.

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  - 3** Remove the aluminum discs from the restraining plate.

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  - 4** Thread four ball set screws or four ½-13 screws into the four corners of the restraining plate. Continue to thread the screws into the plate until the adhesive strips are dislodged from the restraining plate.

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  - 5** Remove the black rubber strips from the double-backed adhesive.

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  - 6** To remove the adhesive strip from the flooring, start at one edge and pull the double-backed adhesive upward at an angle of approximately 45 degrees. The use of a forced air heat gun will aid in softening the adhesive.

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  - 7** Any residual adhesive debris can be cleaned with isopropyl alcohol or an approved citrus-based cleaner. Avoid using petroleum-based solvents, as they may damage the floor surface.
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